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THE ADVANTAGES AND DISADVANTAGES OF ACID FIRING*

K. A. MILES, M.R.C.V.S.
HUSBANDS, BOSWORTH, RUGBY

In opening this short paper I must tell you that the only agent I use for the purpose of acid firing is strong sulphuric acid: I believe there are other acids used.

Let us take the advantages first.

The most striking point in acid firing is that it is practically painless, both in application and in its after effects. For 15 minutes the horse does show some sign of irritation, but this is not of an intense nature, and after this lapse of time no more pain is exhibited. The superficial nerves appear to be very quickly destroyed. If one accidentally spills some of the acid on the fingers, only a sharp tingling is felt. This means that one can dispense with a local anæsthetic, which is a great advantage when firing a part of the hind leg, because it is always difficult to apply a local anæsthetic to a hind limb, especially to the seat of curb. The horse resents the insertion of hypodermic needles there, much more so than in the fore leg.

Another advantage is that if one acid-fires a curb which is causing lameness, that horse can often be hunted, a sound horse, in about 10 days' time, whereas if the actual cautery be used some weeks must elapse before the animal is fit to hunt again.

Acid firing produces a continuous sub-acute inflammatory reaction for a period of about three months, which surely must assist repair of the strained tissues, and when the scars do heal up the skin contraction is very great—greater, I think, than in line firing.

A further advantage is that no blister is necessary and in consequence the horse need only be tied up for a few hours. My usual practice is to tie the horse up short for 24 hours, to be on the safe side; but probably that is unnecessary, as I have never noticed any inclination to rub or bite the leg after the lapse of 15 minutes or so from the application of the acid.

I have never had a case of sloughing after acid firing, as occasionally happens in linear firing with the actual cautery.

The disadvantages of acid firing seem to be few.

The scars that are formed are unsightly, especially if the acid has been carelessly applied and allowed to run down the leg.

It is, of course, useless for bony growths.

It produces far less inflammation than does the actual cautery: therefore another of its disadvantages is that frequently it is not sufficiently severe.

Perhaps the greatest disadvantage of all is that it can be applied, and often is applied, by an intelligent groom or owner.

As to results, I do not know whether acid firing or line firing with the actual cautery is the better: I have some clients who prefer one and some the other. The mere fact that it is practically painless may influence the more humane person to have the acid firing.

I am afraid that you will think that I have given you rather a short, sketchy account, but I hope it will produce some constructive criticisms from those who are interested in the subject.

Discussion

Mr. C. HAYWOOD said that, in his opinion, the term acid firing was a misnomer—acid blistering, if one liked, or acid blemishing. He gave it up after seeing many horrible examples of the process, and he should never use it again. The hot iron he could control, but not acid.

Mr. BRAYLEY REYNOLDS observed that, never having tried acid firing, he was naturally prejudiced in favour of the old-fashioned iron. He agreed with Mr. Miles as to the ease with which the operation could be done, and that was perhaps its greatest advantage and why it had come into use. Mr. Miles referred to the difficulty of dealing with the hind leg. Fortunately a sprain in the hind tendon was nothing like as common as in the fore leg, and it was only in exceptional cases that the hind leg had to be injected. He thought many people made the mistake of using too coarse a needle for local anæsthetic purposes. He used the finest needle he could procure and did not find any great difficulty in its proper application. Apart from the counter irritation that was set up after firing, he thought the advantage was the cicatrix that was formed, which acted as a sort of bandage supporting either the tendon or the ligament, as the case might be. If one had a good cicatrix on one single line—behind, forwards and downwards—when the horse put its foot down one would understand what was meant. He was prepared to admit that the cicatrix from sulphuric acid burning was more intense than from the hot iron, and if one could use the acid in lines rather than in spots, one might conceivably get a much better effect.

Mr. R. H. H. OVER said it seemed to him there was only one advantage that acid firing had over the use of the iron, and that was that it was less

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DEPT. OF VET. MEDICINE

trouble. It had not been a good thing for the profession, because owners were able to buy sulphuric acid, and do it for themselves. He would be ashamed to say he had been responsible for some of the blemishes he had seen on horses' legs as the result of acid firing. His experience was that acid firing could do nothing that line firing would not do—rather was it the opposite. One could control the iron, too, much better than one could control acid. In the case of acid, they had to remember that one skin was different from another, and the effect might be very different also. He would have liked to hear something from Mr. Miles of the technique of acid firing. Did he clip the hair, for instance?

Colonel W. C. Lowe, in the course of some interesting remarks concerning the use of acid abroad, said he had seen the operation used very largely in the case of sprains and the animals had got well, but was this due to the result of the acid or to the rest? There were very few Arab horses in India without some scars from acid firing, as the procedure was very popular with the natives.

Mr. H. W. Dawes said the character of the discussion showed that Mr. Miles had chosen a subject of interest to many present and he would like to assure the essayist that a keen discussion was a compliment to the introducer of the paper. There was an old saying that "There is nothing new under the sun," and although many questions had been raised lately in sporting journals with regard to acid firing, the method was an old one. Personally he did not think that acid firing could be of much use in commercial horse practice as the use of the actual cautery would always be preferred. Like Mr. Over, he would like to hear more of the technique of the operation. Local anæsthesia of the hind limb was largely a matter of the use of a sufficiently fine needle and a satisfactory anæsthetic. He made a practice of injecting around the posterior tibial nerve, on the inner aspect of the leg above the hock.

Mr. W. F. Aston referred to the statement by Mr. Miles that acid firing would cure curbs in so short a space of time that the animals might be used in two or three weeks. That was beyond his (Mr. Aston's) comprehension and he would want to see it to believe it.

Mr. Miles, replying to the discussion, said, amid some laughter, that if he had known Mr. Haywood would be present he would have asked Mr. Dawes to change the title of his paper. He did not think anyone would have difficulty in controlling the acid after one or two attempts. He himself got no running down of the acid on to other parts of the leg, but if he were careless that would undoubtedly happen. He did not think the animal was in pain, because the superficial nerves were destroyed. The animal might feel a little sore, but no more so than in the case of line firing. He used corks of varying size for application and left a space of ⅜ in. to ½ in. between the cork marks. Before the operation, he clipped the hair and washed the part. Mr. Lowe had asked what part rest played in the cure, and his answer was that rest was more beneficial than any kind of firing. With regard to after-treatment, he did nothing. Some practitioners suggested vaseline or zinc ointment, but he simply acid fired and then left it. Replying to Mr. Aston, he did not mean to say he could cure curb in a fortnight, but if an animal came in from hunting with a swollen hock, and it was acid fired, in nearly every case it would be fit to hunt again in ten days' time.

BOVINE TEAT SURGERY*

W. F. ASTON, M.R.C.V.S.
Shrewsbury

There are three common disease conditions of cows' teats which can satisfactorily be treated by surgical methods:—

(1) *Occlusion, partial or complete, of the teat orifice.*

For this condition I recommend Maclean's teat knife. The procedure is thoroughly to clean the end of the teat with a suitable antiseptic preparation. Restrain the cow with kicking straps, ropes or barnacles. Grip the end of the teat firmly with the index finger and thumb of the left hand, insert the director end of the knife at the point where the orifice originally was and quickly thrust the knife into the teat, the flat of the blade going between the finger and thumb. When the knife cuts, the cow frequently jumps and often the knife will be at once involuntarily withdrawn by the operator. If not, give the knife a quarter turn and withdraw; this will leave a perfect crucial incision through the sphincter and milk will flow easily.

In cases where the knife is involuntarily withdrawn a true cross may not be made, but I find in practice that these cases prove as satisfactory as those with a true cross.

After-treatment consists in washing and removing the scab when necessary before milking and again washing afterwards. In three or four days the wounds heal.

I strongly advise no surgical interference with the end of a teat which is inflamed and swollen, or with an open wound, as sepsis in such cases can hardly be avoided.

(2) *Removal of growths or strictures in the length of the teat canal or at its junction with the milk sinus.*

For these I use Hudson's corkscrew instrument. Having restrained the cow and cleaned the end of the teat, first insert the director and carefully find the easiest way past the obstruction: make sure by manipulation of the director inside the teat that you know the position of the passage.

Withdraw the director and slowly insert the small-sized corkscrew—practice will soon make it a simple matter to pass it through the sphincter. When it is all in the teat canal, direct the point of the instrument to the passage made by the director and gently screw over the obstruction. When the whole of the screw part has passed the growth or structure grip the end of the teat very firmly with the finger and thumb and draw sharply downwards on the

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instrument. You will find the corkscrew takes a very firm hold of the growth. On no account snatch the screw part through the sphincter, or this may be injured. It is not necessary to detach the growth to effect a satisfactory cure.

Many of these growths heal within a few days. I do not operate on cows with three or four teats occluded by small pea-like growths. I am of the opinion that these are in the nature of tumours, as they frequently grow up again—which is rare in the ordinary single teat obstructions. When one is sufficiently adept to do this without drawing blood the cure is complete. Occasionally swelling and consequent closure will arise after 48 hours—antiphlogistine applications have always reduced these and the termination has been satisfactory.

Both these operations should be done when the quarter is full of milk; that is, within 48 hours of parturition.

(3) *Fistula of the teat canal.*

The other simple condition which yields to surgical treatment is a fistula of the teat canal. These cases should be undertaken when the cow is dry. Cast the cow and make her secure, anæsthetise the teat, thoroughly clean the part—pick up the lining of the hole with artery forceps and dissect out a considerable portion of the teat wall and fistula. When all hæmorrhage is checked stitch the wound with sterile catgut threaded on a small flat needle. Paint with collodion, bandage and apply sticking plaster. It is essential to get healing by first intention.

Discussion

Mr. R. H. H. Over thought that in preparing for operation the easiest and best method was to wash the teat with petrol and then paint with iodine, instead of washing with ordinary water. Many of these small growths in the teat could be removed by the guillotine tube.

Mr. Aston replied that he had used the guillotine, but had not had much success with it. If there was definite inflammation round the growth and swelling in the teat, one was only courting disaster if one interfered with it surgically.

Mr. J. W. Conchie enquired how one would close a teat which was injured to such a degree that the milk oozed through, the teat, say, being split half way up, as it might be if the cow caught herself on wire?

Mr. Aston replied that he knew of no method of closing a teat in such a case.

Mr. D. M. Martin said he had tried all sorts of remedies for cut teats, and he found it best to treat the condition as an open wound.

Mr. F. C. Heathcote stated that in the case of a damaged teat, he cleaned it in the ordinary way and proceeded to stitch it. Then he bound it with tape and left it three days. On examination, he found that the stitches had more or less sloughed, but the wound had healed nicely. He also put in a teat tube, and allowed the milk to drain away of itself.

Mr. H. Perry said he had been doing these operations for a number of years. He introduced Hudson's operation into his part of the world, where it was now in general use and was very successful. He thought there had been a greater advance made in teat surgery than in any other branch of the profession. He was told, when he began, never to open a blind teat, but now his clients often sent for him to "bore a cow's teat." He preferred Hudson's operation to any other. He thought the instruments shown by Mr. Aston were an improvement, and he should certainly try to get them. When there was a hole at the side of the teat, he placed a plaster round it. Regarding septic mammitis, cutting the teat off might save the cow, but there was a danger of one being called in too late.

Mr. R. L. Phillips had used most of the instruments mentioned by Mr. Aston, and he agreed with his conclusions. He wondered if anyone had tried the American rollers. He had not done so yet, but he hoped to do so. If the teat closed up again after the operation, he did not operate again, but allowed the cow to go dry. With regard to the removal of growths in the teat, it had been suggested that they should be removed whether or not they interfered with the flow of milk, but personally he preferred to let well alone. If the milk came, he did not advise interference.

The President (Mr. F. Chambers) said he had used Stinson's instruments, but had discarded them in favour of McLean's instruments, with which he had met with wonderful success. After cleansing the teat, he marked a cross on the end to show him afterwards where the instrument had first been inserted. Black spot, as it was called, was very prevalent in dairy herds when they were tied up. It was a form of gangrene, caused probably by microbic action, and McLean's instrument would give a very good result. He would like to say how very interested he had been in this subject, and he had learnt a good deal from Mr. Aston and from subsequent speakers.

Mr. Aston, replying, said he did not think they would get a satisfactory result if they operated on three or four teats in the same cow. He believed the obstructions to be tumour growths. It was not that three or four were any more difficult to do than a single teat, but because they grew out again; therefore he never advised interfering with such cases. One could not get a satisfactory prognosis if one interfered with the end of a teat that was in active inflammation or which had a definite wound. He had tried in a good many cases, and found it best to leave them alone. He never did a second operation. If one did not make a success of it the first time it was best to let the cow go dry.

CONTROL OF SWINE FEVER

At a meeting of the Council of the National Pig Breeders' Association it was decided to renew the grant for the veterinary examination of the dentition of pigs at the principal shows to be held in 1933.

The General Purposes Committee's report referred to the Association's inquiry into the regulations governing the control of swine fever, and indicated the lines on which it is hoped to submit suggestions to the appropriate authorities.

The conditions governing the allocation of prizes to show societies for 1933 were settled. These include a proviso that animals entered in the "breeding" classes shall have proved themselves, or shall prove themselves to be what their description implies.

SPECIFIC CANINE HYSTERIA*

H. W. GRIFFITHS, M.R.C.V.S.
Moseley, Birmingham

I understand that in American literature this disease is known as " Frights Disease." Here the name is self-explanatory, the condition aptly described.

The term " Hysteria " is a bad one; the etymology is misleading, for in medical literature it is often improperly applied to cases of simple malingering. It would be better for us to confine the use of the term " Hysteria " to a condition of the nervous system, the intimate pathology of which is not known.

As seen clinically, the disease is essentially a nervous one, and is a definite departure from the normal: there is excitement of varied intensity accompanied by staring of the eye, barking, running round the room, attempts to climb walls, and later hiding in some dark corner—there is, in point of fact, a suspension of the powers of control.

Other numerous and perplexing symptoms can and do arise, but this is as one may expect, seeing that there is a derangement or disturbance of the cerebral substance. It seems evident from observations that the higher nervous centres are more greatly affected than the lower or automatic—powers which in man are carried out by the cerebellum are more or less intact; the dog can still walk or run—it is the higher powers that one usually finds affected. The dog does not know his master; restraint and obedience, once characteristic, are entirely lost, and fear is the predominant feature.

Although I am suggesting here that it is chiefly the highest functions which are affected, one must realise that in such a complex system such an interference must, and certainly does, have an effect on the automatic functions, not only by reason of the exchange of impulses, but by reason of the pathological influence. It is mainly due to this condition that one notices such a variety of symptoms.

ETIOLOGY OF THE DISEASE

A great many factors have been blamed or are being blamed for this condition, chief among which are:—

(1) Parasites of the ear.
(2) Action of some internal gland or glands.
(3) Insufficient phosphatic excretions.
(4) Cerebral insufficiency.
(5) Cerebral irritation (injury) or intoxication.

There may be many predisposing causes:—

Age.—Generally speaking, the young or middle-aged dog is more susceptible than the older dog.

Certain breeds, such as terriers, are certainly more prone than the Pekingese or bull dog. (How many Pekes or bull dogs have been seen with hysteria?)

In-breeding may predispose by a weakening of the strain.

Environment.

Long Fasting.

Foods.

Irritation.

Or any event which has an effect on the emotional character, such as an explosion, or music.

The dog, although carnivore by name and classification, has become so domesticated that the various organs of the body are called upon to function in a very different manner from when the animal was in a natural state. May it not be that the large bowel is the source of infection, that food is too long delayed in its passage through the alimentary canal—delayed defæcation exists in practically all well-trained town dogs—there is a continual absorption of toxins, and the effect of a toxæmia on the nervous system is well known to everyone.

Food may play a very important part, either by lack of raw foods or by giving preparations in which chemical changes have taken place: it remains to be determined how far biscuits containing dessicated meat or fish meal when stored for a considerable period in a damp place affect the condition.

The fact that vitamin D is not stored in the dog's body leads some to suggest that this condition is a deficiency disease. It seems apparent, however, that as a result of continual bowel toxæmia, with the consequent absorption by the blood stream of this toxin or irritant, that the blood supply forms a very important clue to the otherwise obscure pathology of this disease.

It may be that this altered blood content bears something of such a nature as is difficult to demonstrate, which acts on the ganglionic nerve cells, provoking the outbursts known as " Hysteria."

In spite of the fact that many animals in a kennel may be affected, there is no definite evidence that the disease is contagious: that one dog in an attack will sometimes set another off into the weird bark or howl is true, but does not *imitation*, although it is difficult to explain why, carry some clue? Take, for instance, the vice of crib biting. Is not this often passed on to a stable companion? Or in the case of a human being, how infectious may be " a laugh which cannot be checked but continues until tears flow." These are typical examples of a suspension of the powers of control, and point to the fact that hysteria is not contagious.

Hysteria in the human is a psychic state—suggestions and imitations, therefore, must have

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some relationship, for symptoms are so quickly mimicked.

SYMPTOMATOLOGY

The symptoms of hysteria are so explosive in onset that it may be said that the attack occurs and that nothing more is noticeable, but briefly one may divide the condition into three stages:—

(1) Pre-hysterical stage.
(2) Hysterical stage.
(3) Post-hysterical stage.

(1) In the primary stage, which may be only of a few seconds' duration, there is a general hyperæsthesia with clonic muscular spasms as indicated by quick lateral movements of the head and champing of the jaw. There is also staring of the eye.

(2) The hysterical stage may last for varying periods from a few seconds to many minutes, when any event, such as breaking of crockery caused by the frenzied rush around may cause an exacerbation of the symptoms. The bark is high pitched and almost amounts to a howl; if in a room the dog rushes around irrespective of all personal danger. I have seen dogs rush through a window, on to a fire, or fall down stairs.

Tonic Clonic Muscular Spasms.—If the attack comes on outside and the animal is not on a lead the same peculiar howl occurs, and according to the intensity of the attack so does the dog behave—dogs have been recovered 20 miles from their homes.

(3) In the post-hysterical stage, during which there is a gradual return to normal, the respirations are quickened, the heart-beat is fast, the animal hides in a dark corner, and later, on examination, one often finds epigastric tenderness.

An attack of hysteria produces a train of symptoms affecting practically every portion of the body. *The mental state* of the dog is manifest by unbalanced judgment and a complete disregard of personal danger. Hyperæsthesia is well marked, especially over the head and abdominal regions; muscular irritability may persist for days. There is considerable tenderness over the abdominal region, the animal rendering the abdominal muscles tense during manipulations. Not infrequently a joint may remain painful, and especially is this so with the mandibular articulation. One often wonders if pain and acute sensitiveness of the cutaneous nerves are not forerunners of the disease and offer some clue as to the causative factor. Motor nerves as well as the sensory are affected, but in a somewhat less degree, and evidence of this can be seen in muscular spasms affecting the face and hind quarters. If this condition is due to a form of toxæmia, as I believe it to be, then there is no reason why interference with the motor nerves should not give rise to any symptom varying from a clonic muscular spasm to complete paralysis of a limb, and must be a source of considerable difficulty in regard to differential diagnosis.

The Changes in the Circulatory System are perhaps less important but no less remarkable—a tumultuous heart action may be quickly followed by a feeble beat that would almost suggest syncope.

The Alimentary Canal will often show many and varied conditions. Occasionally there is diarrhœa, but more often evidence of retention of the excreta; forcible manipulation will often give rise to the expulsion of flatus, while a few days after an attack one may get a diarrhœa which contains a considerable amount of mucus, is very dark in colour and most offensive.

It would be interesting to know if in bad cases there is some visual interference. There may not be actual blindness, but it is possible that vision is partially obscured, which would account for some of the nervous phenomena described.

PROGNOSIS

In spite of the almost terrifying symptoms, the prognosis is good. Almost every dog recovers. Occasionally there is a return of the disease, but once a dog has completely recovered he is apparently no more prone to a recurrent attack than if he had never had one.

TREATMENT

I do not propose to single out any drug for this purpose. I should imagine every possible concoction in the B.P. has been tried, and all, I have no doubt, have met with some success. If the etiological factor be a toxin carried by the blood stream to the central nervous system, then this is a feasible explanation of the success of a variety of drugs: directly or indirectly a change in the blood stream is produced, be it by a saline injection or a laxative.

Symptomatic treatment is usually required in the first place from the point of view of the owner and the patient.

In all cases, change of food, change of environment, making the dog happy and contented will help in a very large measure to a shortening of the attack and a successful termination to the case.

As with man, so with dogs, no two are organised alike. The difference may be slight and hard to detect, but there are variations in sensibility to music, temperature and sexual influence which, although appearing trivial, denote a difference.

That there is a very definite relationship between mind and body cannot be disputed; a mental process is at every point contrasted with a physical process, for feeling or sensation is a mental manifestation.

I think that the physiologist will figure largely in the elucidation of the cause of the disease, for, in my opinion, food plays a very important part.

Discussion

Mr. W. H. Brooke thought that this complaint was not due to any specific factor. He had met with it all through his experience, and in his view it was always due to toxæmia, arising from the bowels. That made him wonder whether starches were good food for dogs in any form. They were all familiar with the symptoms, and it was his definite opinion that hysteria was always toxæmic. He gave a good dose of castor oil to begin with and ordered a change of diet. He did not think it was contagious in any way.

Mr. W. P. Blount said that while a student at Edinburgh he came across several cases, and the conclusion arrived at was that these attacks were the result of certain foods. A change of diet brought the animal round. Exhaustive examination of the blood of affected animals gave evidence of toxæmia, and he was convinced that the dietetic factors were the most important.

Mr. O. V. Gunning said that although most cases might recover, there was the animal that went off into fits and finally died. He was wondering whether there were not different conditions that were described as canine hysteria. He believed that a number of hysteria cases were the result of worms, and if they got rid of the worms they eliminated hysteria.

Mr. A. A. Forsyth stated that at some kennels he attended the use of lime water had done much to prevent hysteria: on leaving off lime water, they got three or four cases. He agreed with Mr. Gunning that hysterical symptoms were seen in worm-infested dogs, and he generally began his attack in that quarter.

Mr. K. A. Miles said he once had several dogs down in his kennels with hysteria, and Mr. Forsyth suggested that he should give them lime water and a dose of Epsom salts. This was done, but still the hysteria went on. Then he changed his brand of dog biscuit, and the hysteria stopped, which seemed to show the importance of diet.

The President (Major F. Chambers) said he had seen thousands of cases, and he was firmly convinced that hysteria was an intestinal intoxication caused by the ingestion of some microbe or virus in the food. Dog biscuits contained horse flesh and cow flesh that was not always in the best of condition, and so they might well be suspected as the cause of the trouble. Hysteria broke out at Wolverhampton Greyhound Track, and he suggested that every kennel should have a run in front of it, so that the dogs could run in and out, and that no proprietary dog biscuits should be used, but only flesh, plus a few rusks. That was done and there had been no case of hysteria since.

Mr. Griffiths, replying, said he nearly always gave a grain of morphine, and ordered a complete change of diet, which must include raw liver, and brown bread which had been baked and made into rusks. He had also given all sorts of vegetables. That worms could be one of the contributory and existing causes he agreed. He had not tried lime water, but after what he had heard he should certainly do so. He had no ground for disagreement with the President's definition of canine hysteria, and he was specially interested in what had been done at the Wolverhampton Greyhound Track.

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ANIMAL DISEASE CONTROL

THE cursory historical view of the campaigns against the devastating animal plagues which Professor Leclainche makes in a paper an abstract of which appears in this issue, can be read with satisfaction by the veterinary profession throughout Europe, and whilst the sanitary precautions in force minimise the risks of the re-appearance of the major diseases it would seem that the guarantees are not absolute, as the occurrence of rinderpest a few years ago in Western Australia indicates.

It is, however, the author's views on another group of diseases which chiefly arouse our interest: diseases which, in the main, are not devastating, but nevertheless by their insidious spread, by constant attrition, take serious toll of our herds and flocks and in conjunction with other causes make the state of the livestock industry so precarious to-day. Not everybody, possibly, will agree that these diseases, or some of them, have assumed their present widespread character in comparatively recent times, but the point is of little consequence as the realities of the situation are not disputed. The reports which have been recently published on wastage of dairy cows confirm what many farmers have experienced and every country practitioner knows. Neither is the Public Health aspect to be ignored in the case of the transmissible diseases, of which in some cases we know a good deal and in others our knowledge is still incomplete, leading necessarily to exaggeration or discountenance by opposing schools of thought. The idea that a virus is in the earliest stage of the process of adaptation to a species generally held to be immune is fascinating and looking at another disease may not one wonder whether we are witnessing the adaptation of the bacillus of avian tuberculosis to mammalian species by its presence in swine?

When we consider by what means the situation can be improved, we are confronted by two main obstacles, the "flying herd" system of farming, and finance.

Modern methods of milk production involve regular supply of milk by contract, which in times of scarcity requires the purchase of cows to maintain the undertaking; the purchase of cows from outside and usually unknown sources sooner or later is responsible for the introduction of disease, and losses due to abortion.

tuberculosis, mastitis, Johne's disease or other causes necessitate further replacements and incur further risks. Thus too often is a vicious circle set up. In addition, there is the belief in many minds that good grazings are too valuable to be reserved for non-productive young stock and that it is therefore cheaper to buy mature cows than rear heifers on the farm. The short view may be attractive but how fallacious it is! It will readily be appreciated how seriously these changes in the constitution of herds compromise any endeavour to control disease and what a complication the presence of such herds would introduce in an Area Plan of eradication. It should be frankly recognised that only palliative measures can be employed by the practitioner to minimise losses in herds of this type. These measures, *e.g.*, vaccination, may render very useful service but as, in some cases, the immunity is not sterile, the ideal to aim at is total elimination of disease and this implies the eventual placing of the herd on a self-supporting basis.

The second obstacle is finance. The Government is compelled to practise economy and the agricultural industry is struggling in the deepest trough of economic depression. Serious as are the losses arising from disease, to eliminate them means expense not only in the initial stages (when, however, it is at its peak) but continuously, even after eradication, because it is imperative that testing and control be maintained in order that immediate steps be taken to prevent accidental re-introduction of infection spreading throughout the herd. The stockowner who embarks upon a scheme of eradication of disease is committing himself to permanent expenditure in fees if he stays the course. It is therefore imperative for the practitioner and the laboratories to recognise the financial limitations and commitments of the farmer if any real progress is to be made.

It would not be right to pretend that eradication presents no other difficulties to the owner: on the contrary, every case will present its own. But an enthusiastic farmer in collaboration with the practitioner will be able to overcome them. To borrow a phrase from the abstract, "Inaction is impossible." Certainly the disease situation demands attention and the one essential condition can be complied with: the necessary knowledge, at least in respect of some diseases, is adequate. It is the application of existing knowledge which is lacking. At present, we cannot look to the Ministry of Agriculture and Fisheries for aid in this matter, but an enquiry is promised. This, in the circumstances, we cannot discuss, but it can be said that Professor Leclainche is right in indicating the need for accreditation of herds and flocks in respect of certain diseases and that little progress is to be expected until accreditation is available. If such a system were introduced into this country in respect of diseases of cattle, there is little doubt that, despite the difficulties, it would be welcomed by many stockowners and on the principle that example is better than precept it would expand and assist the progress of the livestock industry. Veterinary preventive medicine would then—and only then—assume its rightful place in veterinary science. A carefully planned scheme, a well organised administration within the framework of a national veterinary service, and perhaps a little judicious assistance by the State should ensure success.

Clinical Communications

LONGITUDINAL FRACTURE OF THE SCAPULA IN AN ARAB RACE MARE

M. MOHEY-DEAN, M.R.C.V.S.

Professor of Surgery, Bombay Veterinary College

An Arab race mare, "Sarkha," was admitted to the College Hospital on February 10th, 1932, with the history that on February 6th, during a race, the animal while taking a turn at a bend on the right side stopped suddenly and fell down. It was dead lame on its near fore and was taken to the owner's stables, where it remained for four days and was then brought to the Bai Sakarbai Dinshaw Petit Hospital for Animals for treatment on February 10th, 1932.

The owner suspected rupture of the near fore flexor tendons. On examination, the tendons were found to be slightly sprained, but the severity of the lameness was out of proportion to the degree of sprain of the tendons. The animal was unable to put weight on the near fore: the limb was greatly swollen and the shoulder region was œdematous, while the swelling extended up to the knee, though it was not great as at the shoulder, neither was it œdematous. The affected parts being painful, however, manipulation could not be carried out satisfactorily.

The animal was put in slings and belladonna liniment applied over the region of the shoulder, chest and forearm. In the absence of crepitus it was suspected to be a case of severe sprain of the shoulder.

XUM

Next day the animal seemed to be in great pain and exhausted, so much so that it would not rest in the slings properly, but was swinging in them. Accordingly, the slings were loosened and the animal allowed to stand. It was noticed to be resting on its near toe; the point of elbow was dropped and the knee joint flexed—a posture typical of radial paralysis. The swelling had now undergone considerable reduction and the part was not very painful. Manipulation of the scapula, humerus, radius and ulna did not reveal fracture of any of these bones, but when the limb was rotated inward and outward by an assistant,, crepitus was clearly heard on auscultating the shoulder region. On account of these symptoms a diagnosis of " fracture of first rib " was made.

Because of the inability of the animal to stand constantly in the slings it was allowed to rest in them only for half an hour or an hour at a time; it was then let loose in the box.

The mare was given chloral hydrate and laxatives daily. On succeeding days the same treatment was followed and though the swelling was getting less every day still the animal seemed to be in great pain and was constantly pointing towards the shoulder.

On February 14th, 1932, the animal had a temperature of 103° F.; it was therefore given a febrifuge every day till the fever disappeared on February 18th.

On February 15th, the animal started putting weight on the affected limb without the provision of any support to the knee, and by February 18th she could move about on it, though with some difficulty. The condition was improving every day and the result seemed to be quite flattering.

On February 21st, slight fever being present, febrifuges were administered till 29th, when the fever disappeared; but a very hard swelling extending from the middle of the scapular region to the upper third of the humerus still persisted. This swelling seemed to be subcutaneous in the sense that it was not attached to the bone. This persisted in spite of daily massage with liniments and absorbents.

The gait of the animal was improving daily, though at the time of moving the animal showed obvious signs of pain, despite the fact that manipulation of the part did not elicit any pain.

The animal lay on the bed most of the time and was losing condition in spite of tonics and careful feeding.

About the middle of March the mare seemed to be at ease, and began moving about without showing any pain. Nevertheless, extension and flexion of the joint was restricted, and the indurated swelling did not show any tendency to decrease.

Eventually the mare was destroyed on March 30th, 1932, at the request of the owner. On *post-mortem* examination the supraspinatus, infraspinatus, deltoid, and trapezius muscles were found to be indurated and on deeper dissection the major portion of the muscles was found to be fibrosed and calcified; some callus formations were left about the lower third of the scapula, and the shoulder joint was very much enlarged and out of shape.

As it seemed impracticable to dissect the fibrosed and calcified muscles from the bones, the humerus and scapula were detached from the body and allowed to macerate. The first rib was found intact and healthy, which showed that the symptoms of radial paralysis were not due to fracture of that bone. When the bones were ready for examination the scapula was found to be longitudinally fractured, the fracture extending from the lower third of the bone into the glenoid cavity and dividing this cavity into five parts. Though the accident occurred nearly two months previously the fractured edges did not unite and callus formation on the bones was of the nature of rarefying ostitis. There was no anchylosis or any appreciable corrosion of the head of humerus, though there was callus formation on the neck of the humerus and scapula.

(Photo by Professor A. H. Khan.

Conclusion.—The fracture seems to have taken place as a result of excessive muscular contraction. It is a matter of great difficulty to place a correct interpretation upon the exhibition of symptoms of radial paralysis, and this condition is therefore sometimes misleading.

It is remarkable that, in spite of extensive fracture, no anchylosis occurred and considering the extent of the lesions the movements were not very much impaired. Severe sprain of muscles can easily lead to their fibrous degeneration and even calcification.

GASTRO-ENTERITIS: A COMMON CAUSE OF DEATH IN CATTLE

A. J. KENNEDY, B.Sc., M.R.C.V.S.
Thornhill, Dumfriesshire

What is the commonest cause of death in cattle practice? The answer must, of course, vary according to the locality and conditions. *Post-mortem* examinations are very interesting and complete the clinical study of a case, but generally lead to fresh problems.

I have before me notes of 91 consecutive *post-mortem* examinations in cattle. Classification is not easy, but, as nearly as it has been possible for me to ascertain them, causes of death are as follows:—

Traumatic peritonitis (with or without pleurisy and pericarditis)	8
Milk fever	5
Metritis	13
Mammitis	8
Tuberculosis	8
Hepatitis, Grass Staggers, Primary Peritonitis (each)	2
Various causes	8
Gastro-enteritis	35

In more than one-third of these fatal cases, as far as can be judged by careful naked-eye examination, gastro-enteritis has been the only pathological condition of importance. The mucous membrane of the abomasum and intestines has shown the most marked changes, varying from great congestion and hæmorrhagic exudate to dull, bluish-red spots of inflammation. Congestion of the mesenteric blood vessels has usually been present in varying degree.

Such findings make one think of the cause, treatment and diagnosis of the condition, and such further remarks as I have to make regarding cause and treatment are put forward in the hope that more experienced practitioners will criticise.

In my experience, gastro-enteritis is caused by food or water unsuitable to the particular animal, whose neighbours, however, may be unaffected by the same ration. There may be certain predisposing conditions, but they are difficult to define. The disease, as I meet it, generally takes two or three days to develop. The animal is "not right" for a day or two before showing more acute symptoms.

Treatment would have more chance of success if the veterinary surgeon was called in at a much earlier stage. I have not touched upon such a big subject as diagnosis, but many indispositions in cattle are daily attributed to intestinal or gastric catarrh, and respond to simple rational treatment. They are under control before the more serious lesions develop.

When a condition of gastro-enteritis becomes fairly well marked rational treatment would consist in resting the mucous membranes, but with due regard to the fact that the animal must be nourished.

As for drugs, purges and stimulants are often used. I think, however, that sedatives and carminatives to allay pain and make the animal more comfortable, are more likely to be successful. It should be remembered, however, that peristalsis and the secretion of digestive juices must not be seriously interfered with.

. . . . .

I was called to an Ayrshire bullock, two and a half years old, with suspected actinomycosis, and was able to obtain the following evidence from examination and history:—

General Condition.—The animal had been at grass all the summer and thriving satisfactorily. Salivation was noticed a day or two before the owner called me in. The bullock was in advanced store condition. The coat was rough and dry, however, and there was slight dulness of disposition. He was feeding fairly well.

Respiration.—Rate normal; immediately behind the shoulder on both sides inspiratory sounds were loud and similar in all parts—what I would call normal. A little further back they were hardly audible and more subdued in tone—again, what I would call normal. On the right side at the end of each inspiration there was a very slight extra friction sound.

Digestion.—Tongue stained yellowish-green with grass feeding, hard and with the surface showing a contracted irregular appearance behind the dorsum. Salivation of frothy sputum, peristaltic churning (of rumen) audible at left flank. Fæces plentiful and characteristic of normal grass feeding.

Circulation.—I found it difficult to hear a good solid heart beat. Temperature 102° F. Mucous membrane of conjunctiva reddish-pink in colour.

No other evidence seemed available.

Diagnosis.—Actinomycosis, with some consequent loss of constitutional strength.

Treatment.—Hydrarg iod.-rub. in average doses. Although continuous administration of this drug becomes dangerous, I think it quite safe to use it as the initial treatment of a case of actinomycosis, continuing, say, for the first week.

Course.—Six days later the bullock was somewhat staggery, and exactly a week from my first visit he was down, breathing quickly, eyes half closed, legs making pawing movements. There was rectal straining and the temperature was 108° F. Death occurred in four hours.

Post-mortem (18 hours later).—The following abnormalities were noted:—

Respiratory Organs.—Profuse reddish pleural adhesions intermixed with pearl tuberculous lesions, principally on the right-hand side. Many caseous cavities in the right lung; none in the left.

XUM

Digestive Organs.—Tongue with much of its substance occupied by nodules identical in appearance with the white pearl lesions of the serous cavities. Two slides taken directly from the tongue nodules, and stained with Ziehl Neelsen, showed numerous bacilli, resembling *B. tuberculosis* in morphology, but which had not taken on a distinct redness from the stain.

Retropharyngeal and submaxillary lymph glands caseous. Pearl lesions and red adhesions widespread in peritoneum. No visible tuberculosis in the mesenteric lymph glands.

Central Nervous System.—Very small pearl lesions and bloody adhesions in the membranes of the brain and medulla.

SIR FREDERICK SMITH MEMORIAL

Tenth List of Subscribers

	£	s.	d.
Previous list (April 19th, 1932) ...	235	18	0
Gooderidge, Major R. A., R.A.V.C. ...		10	0
Stevens, Major W. S.		10	6
	£236	18	6

Smith Memorial Committee

A meeting of the Sir Frederick Smith Memorial Committee was held at 10, Red Lion Square, London, W.C.1, on October 6th, 1932, when the following members were present: Sir John M'Fadyean (in the chair), Professor J. F. Craig, Lieut.-Colonel P. J. Simpson, Major S. L. Slocock, Colonel A. G. Todd, Colonel G. K. Walker and Dr. Fred Bullock (Hon Secretary and Hon. Treasurer).

The minutes of the previous meeting were read and signed as correct.

AUDITOR'S REPORT. — The following audited statement was submitted and approved:

Income and Expenditure Account

Income

	£	s.	d.
To Subscriptions	236	18	6
„ Interest on Deposit Account ...	1	13	0
	£238	11	6

Expenditure

	£	s.	d.
By Deposit Account	161	13	0
„ Printing Appeal	8	10	0
„ Photograph	1	1	0
„ Painting Portrait and Frame:			
By D. Hardy ... £50			
Frame £6			
—	56	0	0
„ Miscellaneous Payments ...	1	5	3
„ Cash at Bank	10	2	3
	£238	11	6

Balance available:—

	£	s.	d.
Deposit Account	161	13	0
Cash Account	10	2	3
	£171	15	3

Audited and found correct.

(Signed) P. J. Simpson.

September 19th, 1932.

REPORT FROM HONORARY SECRETARY.

The Honorary Secretary reported that he had completed the preparation of Sir Frederick Smith's MS. for Volume IV of his History of Veterinary Literature, but proposed that the volume should also contain a memoir of the author and a list of his published works. This was approved and it was resolved "That the Honorary Secretary be authorised to proceed with the publication of the volume, the cost to be defrayed out of the balance in hand."

TUBERCULIN TEST CERTIFICATES

On the opposite page we reproduce forms of certificate drawn up by the Veterinary Officers' and Public Health Committee of the N.V.M.A., for the use of members of the profession in recording the results obtained from the application of the subcutaneous and double-intradermal tuberculin tests. These certificates can be used for the testing of animals for sale in the open market, private sale, and export; but they should not be used in substitution of the Ministry of Health's certificate for the testing of graded herds.

There are two forms of certificate for each test: one for the testing of a single animal and the other for recording the results of testing up to ten animals.

It is hoped that the use of these forms in this connection will become universal amongst members of the profession. They are the outcome of prolonged consideration on the part of the Veterinary Officers' Committee as to the most satisfactory form of test certificate, and are designed to achieve uniformity in the mode of certification, with a view to meeting the requirements of auctioneers and those engaged in the private and export sale of cattle.

Arrangements have been made whereby books of certificates (containing 100, with carbon copy) **may be obtained from Messrs. H. R. Grubb, Ltd., Poplar Walk, Croydon, Surrey,** at a price of 6s. per book, *plus* 6d. postage (cash with order). If desired, the name and address of the purchaser will be printed on each certificate without additional charge.

TUBERCULIN TEST CERTIFICATES.

1A. No._____

This is to Certify that on _____ 19____

I tested with tuberculin obtained from _____

(description of animal)

the property of _____

The said animal has, in my opinion, passed the Double Intradermal test.

MEASUREMENT CHART.

At 1st Inj.	At 72nd inj. 48th hour.	Character of Swelling.	At 72nd hour.	Character of Swelling.

_____

1B. No._____

This is to Certify that on _____ 19____

I tested with tuberculin obtained from _____

the animals described below, the property of _____

_____ of the said animals have, in my opinion, passed the Double Intradermal test.

MEASUREMENT CHART.

Description, Name, and Number.	At 1st inj.	At 72nd inj. 48th hour	Character of Swelling.	At 72nd hour.	Character of Swelling.	Result.

_____

2A. No._____

This is to Certify that on _____ 19____

I tested with tuberculin obtained from _____

(description of animal)

the property of _____

The said animal has, in my opinion, passed the Subcutaneous test.

TEMPERATURE CHART.

At inj.	9th hour.	13th hour.	16th hour.	19th hour.

_____

2B. No._____

This is to Certify that on _____ 19____

I tested with tuberculin obtained from _____

the animals described below, the property of _____

_____ of the said animals have, in my opinion, passed the Subcutaneous test.

TEMPERATURE CHART.

Description, Name, and Number.	At inj.	9th hour.	13th hour.	16th hour.	19th hour.	Result.

_____

Abstracts

[A Modern View of Veterinary Sanitation. Leclainche, E. (Director, Office International des Epizooties.) *Bulletin.* Vol. vi. No. 1. Office International des Epizooties.]

The incidence of contagious and parasitic diseases of domestic animals has completely changed during the past fifty or sixty years.

Of the old diseases which were so justly dreaded—such as rinderpest, sheep-pox, pleuro-pneumonia, glanders, rabies, dourine, anthrax, blackquarter, swine erysipelas—only foot-and-mouth disease remains a menace. The others have totally disappeared or are easily controlled by reliable methods of prophylaxis. The amount of the enormous losses which have been prevented in civilised countries by the veterinary sanitary services has not been computed and only certain economic and social consequences of their intervention have been recognised.

New widespread infections of the old diseases are no longer to be feared. If in the past, war was always associated with the introduction or recrudescence of epizoötics, present-day veterinary organisations are effective guards against such accidents, and these organisations were recently put to a severe test. It is sincerely to be hoped that mankind will not again be subjected to the terrible shocks of world war, but neither among men nor among animals were there observed serious epidemics in the course of the late War. The few outbreaks of animal disease which arose in the course of the campaigns were immediately controlled and rapidly eliminated.

The centres in which these diseases still exist in Europe and in the New World are known, defined and controlled. Africa is almost completely explored from this point of view. The *terra ignota* is limited to Asia and we merely know that there exist on that continent, without grave risk to us, infections that have elsewhere disappeared.

On the other hand, new dangers have arisen and these undoubtedly are as threatening as the former plagues. Diseases which were almost, if not quite, unknown a century ago, are to-day widespread and threaten the whole population of some species of animals.

At the end of the eighteenth century tuberculosis was localised in a few well-bred herds but exportation of breeding stock has spread the disease throughout the world. Insidiously it extends in all countries in geometrical progression and completely free areas are restricted to a few small islands. The disease is not merely confined to cattle; swine and poultry are also largely involved.

Swine fever, which seems to have originated in the United States, now exists in all parts of the world. The acute epizoötics cause heavy losses, whilst the attenuated forms, neglected or unrecognised, are gradually extending in all countries.

Bovine mastitis, undoubtedly localised in a few centres until the beginning of the twentieth century, is now spreading everywhere to such an extent that in some countries, a third, or even one-half, of the herds are infected, and one may reasonably anticipate a generalisation of these infections within a short time.

One knows with what rapidity Bang infection has spread throughout the world. Under one or other of its multiple forms, provoking Mediterranean fever or abortion, it is encountered everywhere with a tendency to indefinite spread.

Certain diseases of poultry, which were until recently localised in certain parts of America, are now found everywhere.

This does not complete the list. It could be extended even now, and no doubt in the immediate or distant future further conditions will be added to it. The conversion of saprophytes into parasites is not to be anticipated in every case and if there are diseases which may be defined as "diseases of the future," there are, on the other hand, others which are becoming attenuated or are disappearing. Nevertheless the situation regarding the virus diseases is not reassuring, as the neurotropic types are increasing in number and extending their geographical incidence. The coli-paratyphoid infections are also spreading in different forms. Johne's disease, infectious anæmia of the horse and caseous lymphadenitis are somewhat disquieting.

Diseases due to blood parasites, particularly piroplasms and anaplasms, the dangers of which have been under-estimated, seem also to be spreading. The safety which was thought to result from the inability of some of the vectors to live in certain latitudes is now recognised to be very doubtful.

It must further be recognised that several of these infections are an actual danger to man and a future menace; for example, the brucellas, streptococcus infections, particularly of the udder, and the coli-paratyphoid infections. The ability of virus diseases to provoke non-apparent infection in man, foot-and-mouth disease (Kling and Höjer, Forstman), distemper (Nicolle), swine fever (Nicolle), may produce a state of complete immunity, but it may also be considered as the starting point of adaptation of viruses to species specifically insusceptible.

The epidemiological characteristics of these infections are disconcerting on account of their peculiarities. These diseases are not strictly specific, differentiated by the fixed characteristics of their causal agents and by the clinical

and anatomical appearances, progressing to a state of immunity with sterilisation of the subject, or after recovery, persistence of causal organisms exceptionally and only for a short time. We are dealing, on the contrary, with diseases of obscure specificity associated with the pathogenic action of organisms present in saprophytic state often resulting from the presence of multiple virulent types producing various clinical and anatomical changes, resulting generally in a state of premunition (infection-immunity) with indefinite persistence of organisms excreted in various ways.

One group of these infections appears to represent the ultimate state of virulent adaptation, the genuine saprophyte having become entirely a parasite, unable to return to its saprophytic existence, and ceasing to exist at the death of its host.

The other infections represent invasions by parasites more closely related to saprophytes commonly found in nature, frequent if not habitual parasites of various animal species, and always ready to take advantage of a defect in the normal defences to invade the organism and establish themselves there permanently.

It is possible to vaccinate against some of each group, but whilst in the first a sterile immunity is produced, the vaccine-virus disappearing entirely from the organism, in the others a state of premunition only is produced, and the vaccinated animals remain more or less dangerous on account of the organisms which they maintain and eliminate.

The prophylaxis of these permanent infections is perplexing. The ancient formulæ of sanitary action, such as notification, isolation, slaughter, disinfection, etc., cannot be applied to them. The largest test has been made in bovine tuberculosis, the means of spread of which are less mysterious than those of other diseases. It was thought that the methods which enabled pleuro-pneumonia and glanders to be stamped out would have been equally effective against tuberculosis. Failure has been encountered everywhere and for many reasons. In the first place, compulsory action must be limited both in regard to its objective and in time. Such is the case when the essential interests or the existence of a country are at stake. The requirements have therefore less force when limited economic interests only are involved. Some individuals have made a big sacrifice and others have been ruined in order to eradicate an outbreak of glanders. It would not be possible to contemplate similar action for an indefinite period or at the same time involving tens of thousands of owners of tuberculous cattle. Passive resistance would be sufficient to lead to break-down even if an attempt were made to proceed energetically with the campaign. There is a further consideration; it would be necessary to be certain of the results before entering upon such compulsory action. We could not be certain of these. All the means by which the disease is spread are not yet realised, and even if tuberculin be regarded as a certain diagnostic agent, it is not possible to guarantee a definitely effective prophylaxis by isolation of diseased animals. Above all, a compulsory sanitary system cannot be imposed if it depends of necessity on the collaboration of owners. The only logical method is, as in the case of rinderpest, pleuro-pneumonia, glanders and rabies, the slaughter of diseased animals and those exposed to infection. That measure has not been applied, and with reason, as it could not have been successful because the animals exposed to infection could not have been identified. The American experience is a very particular case, and the authorities have repeatedly declared that their methods are only suitable in a country in which the incidence of the disease is low.

Swine fever is another example of the failure of sanitary action. *A priori* the attempt at stamping out was justified both on economic grounds and on the etiology of the disease. The attempt failed at the hands of the British service after an admirably-directed campaign. At that time it was not possible to foresee the rôle of the carrier especially of the chronic cases of infection which often cannot be suspected.

It is recognised in a general way that it is impossible to classify such infections as the brucellas, mastitis, virus diseases, B.W.D., among those legally defined as contagious, *i.e.*, made notifiable, even if there were applied the minimum of legal restrictions, and Governments hesitate so to classify other diseases such as Johne's disease and infectious anæmia of the horse. As regards tuberculosis, minimum action is taken and merely cases of certain localisations of disease in certain specified species are subject to notification.

Inaction, however, is impossible. Veterinary sanitary services should not be content to follow the spread of infection to collect statistics and to explain the difficulties of prophylaxis and the lack of means of control. New problems must be met by new methods, and it is our duty to seek the latter and apply them.

The first principle can be formulated. If any useful action is to be taken, not only is the consent of the owners necessary but also their willing collaboration. This is not unattainable in practice, and only the initial stages require some effort. The example set by the few would be followed by others, and observance of the necessary regulations would not be demanded by Governmental authority, which is becoming weaker and weaker, but by other means.

Another point is the following. Sanitary

action as enforced at present involves the identification of infected animals which are isolated until they are disposed of by death or slaughter, or until the presumed disappearance of risk of infection being spread by the recovered animals. This is completed by disinfection of animals and premises. These measures are inapplicable in many cases.

The problem of the carrier has introduced in the matter of dissemination of infection a new factor of dominating importance. In several diseases it is impossible to state that animals which are deemed to have recovered or which have been exposed to infection are not carriers of pathogenic germs and do not constitute a risk of spread of infection. There are not merely true virus carriers which for a variable time maintain and excrete either permanently or intermittently a virus after all symptoms have disappeared; there are also the chronic cases with or without permanent discrete lesions, showing a variety of symptoms, some of which bear no resemblance to those of the initial state. A third group consists of those which are merely mechanical carriers of germs, individuals which have a marked resistance in consequence of their natural defences and which may be members of other species, including man, and may or may not have specific lesions.

All these carriers represent inevitable dangers, since it is impossible to deal with the virus that they retain; on the other hand, disinfection, in spite of all its uncertainties, can be applied to premises and inanimate objects of all kinds capable of transmitting infection.

In these diseases it must be admitted, in the author's opinion, that every animal originating from infected premises must be considered *a priori* as dangerous, and this suspicion should be maintained until the utmost prudence has been exercised, as diagnostic tests, applied severally or even in association, hardly ever give an absolute guarantee.

Still greater care must be exercised in respect of animals in a herd from which a disease is believed to have been eradicated, and of animals which are introduced into such herds, because a renewal of activity of infection in any of the animals in the herd will expose the others to infection, and moreover the risk of preservation of virus on the premises is not overcome with certainty by disinfection.

If these views are accepted, how can a rational sanitary system be conceived?

In principle we should abandon the idea of eliminating the disease from an infected herd. Even if it were possible to eradicate disease, the method is nearly always to be condemned from the economic point of view.

The whole of the stock should be treated as suspect and be got rid of, as circumstances permit, and the herd re-established by healthy stock.

This introduces a new problem. Where is the healthy stock to be obtained?

The question is not put for the first time. Many recommendations have been made on this point. While the clinical, bacteriological and biological methods of diagnosis were being perfected, systematic periods of observation in quarantine were laid down in the case of animals about to be introduced into herds. Internationally, Governments apply the same methods—diagnostic tests and quarantine at the frontier or at destination.

Experience has shown that if these methods are rigorously applied, and they seldom are, they give appreciable results but never absolute guarantees. Very often some carrier, or even a diseased animal, escapes identification and spreads infection all the more rapidly if brought into a healthy herd. As to the period of quarantine, it is in practice never sufficiently long to be adequate.

It appears to be accepted that in respect of a number of diseases, including tuberculosis, the only real guarantee can be given when the animals originate in a disease-free herd.

How then can a herd be guaranteed free from disease when we admit that diagnostic tests may be inadequate? Only prolonged observation of herds, such as can be secured by permanent control, and the examination of carcasses of animals which die or are slaughtered, can, in Leclainche's opinion, justify such a guarantee.

The formula which the experts at Geneva laid down, namely, that a country cannot guarantee the state of health of its livestock unless the whole of the livestock industry is permanently under the control of an effective veterinary service, is not limited in its objective. It is applicable equally to the diseases scheduled in the legislation and to the non-scheduled diseases which are to be feared quite as much as the others.

It is not difficult to reply in advance to objections which assuredly will be made against this idea. Is it possible to carry out such control and will it be efficient?

This method is already applied on a large scale in certain directions. The North American idea of accreditation in respect of tuberculosis involves the official certification of the state of health of herds of cattle. In Pennsylvania accreditation is applied to flocks of poultry guaranteed free from B.W.D. The Bureau of Animal Industry issues the certificates and publishes the list of controlled establishments. In Denmark Carl Jensen recommends control by the State of poultry farms which supply eggs for hatching and day-old chicks, and even now the Associations publish lists of flocks declared

free from disease by the State Serum Laboratory.

This is the method which should be extended to quite a series of diseases which are not susceptible to compulsory prophylaxis by ordinary sanitary police measures. It is time that the expansion in geometric progression of tuberculosis, abortion, and the other brucella infections, mastitis, etc., be checked. The situation is already sufficiently grave. In twenty years, if matters are allowed to drift, it will hardly be possible to find a herd free from some of these infections. The establishment of new herds would then depend upon stock drawn from herds from which disease has been eradicated and it might be found in practice that the difficulties would be insurmountable.

Is it possible to rely upon the collaboration of owners which has been laid down as an essential condition of non-compulsory prophylaxis? In the author's view, there is no doubt about this. The breeder is the best judge of his own interests. He will resist interference as soon as he finds it ineffective, and one may say that too often his patience has been unduly tried. On the other hand, he has accepted the most rigorous methods, such as slaughter, sometimes without compensation, when he could observe definite results.

The certificate of accreditation or " guarantee of health," will rapidly become popular in respect of all species and its economic advantages will be obvious. It is hardly necessary, and in fact it may not be desirable, that such an enterprise should expand too rapidly. Having regard to the system of guarantees which are so extensively applied to such products as milk, butter, eggs, etc., and so widely recognised, it is impossible to foresee failure in the application of the system to livestock.

By whom should the certificates be issued and who, consequently, should control the system? Certificates might be issued under Governmental responsibility, or under the responsibility of private organisations. In a general way it may be said that the State guarantee would be more highly appreciated, since it implies control by responsible agents.

The application of the measures of control would certainly be a somewhat delicate matter and precise rules would have to be drawn up. They should involve, in respect of each species of livestock, a list (which could be modified from time to time, as circumstances demand) of the diseases embraced in the scheme. Supervision, identification of animals, clinical examinations, diagnostic tests, *post-mortem* examinations, etc. —all the operations involved in the control— would have to be recorded in a stock register. The time when certificates should be issued, and the period of their validity, would have to be determined. A list of accredited establishments would have to be prepared either officially or by the responsible private organisations.

Such a system would enable disease-free establishments, that are becoming fewer and fewer, to be effectively protected, and it would enable interchange of livestock without risk among themselves. These establishments would provide valuable sources of stock for the replenishment of infected herds, if such a method were attempted, or for the reconstitution of herds by substitution.

Internationally such a system would be of equal importance. One may certainly anticipate that prohibitions and restrictions—these " walls of China " which surround all nations—will not be permanent, but the freedom of international movement of livestock will always be contingent on their health. Only those countries which possess veterinary organisations which are recognised as being thoroughly satisfactory will be in a position to comply with conditions which quite legitimately will become more and more rigorous.

D. A. E. C.

[Researches on the Toxic Nature of Anthrax Infection. Phéloukis, Th. *Bulletin de L'Académie Vétérinaire.* Vol. 5. No. 7.]

(Professor Panisset, in introducing this paper to the Academy, observed that since Marinier, thirty years ago, proclaimed the toxicity of its cultures the question has been posed of the toxigenic power of the anthrax bacillus and diverse and contradictory ideas have been advanced. The view of the bacteriologist is that the pathogeny of charbon fever is associated with the parasitic aptitude of the bacillus rather than with its power to secrete toxins. Many facts are, however, opposed to this opinion; notably the death of individuals who present only a lesion at the point of entry, in the absence of septicæmia or in the rarity of anthrax bacilli in some cases—notably in the pig. Moved by an experience that tended to prove that the second vaccine of Pasteur is capable of elaborating soluble products that may occasion death, M. Phéloukis has undertaken the study of the toxigenic power of the bacillus of anthrax.)

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In consequence of the death of a number of Greek Army horses after they had received anti-anthrax vaccination, a rigorous examination was undertaken and the conclusion was arrived at that the mortalities were due to an intoxication by soluble products from the germs of the second vaccine.

The toxigenic capacity of the anthrax bacillus seemed here to receive clinical proof and it was decided to undertake the study of a question, always new, as to the existence or not of an anthrax toxin.

This experimental enquiry embraced:—

(1) A study of the toxicity of the blood of animals experimentally infected with anthrax;

(2) A study of the toxicity of culture media after they had served for the development of anthrax bacilli.

(a) Toxicity of serum of animals experimentally infected with anthrax.

Attempts to isolate specific toxins from the organic humours of animals dead of anthrax, natural or experimental, have always failed. A plausible explanation is that the toxin enters into combination with the cells of the part, the result being atoxic. As in anthrax infection the bacilli for the first three days are totally absent from the general circulation, remaining at the seat of infection or in certain lymphatic glands and exercising their action by the issue of certain damaging soluble products, it was thought that in an animal experimentally infected these products, in the early stages, would be found in the blood.

Accordingly, rabbits were inoculated with anthrax to study the toxicity of their serum for the guinea-pig. Inoculated in the evening, the next day and up to the death of the animal blood was drawn by heart puncture morning and evening. Guinea-pigs received intraperitoneal injections of the serum obtained, and as a result showed a loss of weight and a rise in temperature.

Resumé.

(1) The serum of rabbits inoculated with anthrax is toxic for the guinea-pig, causing a temporary pronounced loss of weight.

(2) This toxicity is of variable intensity; it is most marked soon after infection diminishes, gradually to disappear at the approach of death.

(b) Toxicity of culture media in which anthrax bacilli have developed.

Since Marinier in 1895 extracted from anthrax cultures a substance very toxic for the rabbit, the question as to whether a toxin was produced by that bacillus has been much disputed. Marinier's findings have not been confirmed. The feeble toxicity of the products elaborated in the cultivation of the bacillus *in vitro*, compared with its enormous toxigenic power *in vivo*, is doubtless a function of the different conditions of culture offered to the bacilli *in vivo* and *in vitro*.

Metchnikoff and others hold that anthrax bacilli animalised by culture in media to which blood is added acquire greater virulence and modify themselves morphologically in forming capsules. The author considered that such cultures might yield a more powerful toxin. Accordingly animalised cultures were made and the products tested on the guinea-pig—an animal considered relatively resistant to anthrax toxin although extremely susceptible to anthrax virus. Animalised cultures give products eminently more toxic than do the simple cultures. They give rise to a severe organic reaction in inoculated guinea-pigs with 10 per cent. mortality. There is a rise of temperature which persists until recovery or is followed by a fall in fatal cases; there is also considerable loss of weight. Death is by asphyxia. Bacteriological examination of the organs is negative.

Resumé.

(1) Filtrates of anthrax culture are toxic for the guinea-pig even if the strain cultivated is that of the second Pasteurian microbe.

(2) The toxicity of these filtrates is eminently greater (even killing inoculated guinea-pigs) for strains of the bacilli animalised by culture on blood plasma.

Conclusions.

These experiences do not prove the existence of anthrax toxin. The products studied, although toxic, cannot properly be called toxins—a term applied to microbic extracts or to killed cultures capable of reproducing experimentally the same symptoms and lesions as living cultures. But if the toxin of anthrax has not been found, the pathogeny of anthrax infection has been made clearer by these experiments since it is proved that:—

(1) The anthrax bacillus secretes *in vivo* soluble toxic products that can be demonstrated in the serum of animals experimentally infected. These soluble products elaborated by the bacilli, which are yet absent from the general circulation, invade the organism and prepare the field for the final attack of the anthrax bacilli. These poisonous products disappear from the blood as death approaches.

(2) The anthrax bacillus cultivated *in vitro* under conditions approaching those found in the body secretes products of increased toxicity. The fact that anthrax toxin has not yet been isolated should not constitute an argument against the evident toxic nature of anthrax infection. Research is needed for the isolation of this toxin to clear up the pathogeny of anthrax infection and to add to the number of microbial toxins—a small number in view of the great variety of known pathogenic microbes.

W. R. D.

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[**Iodine in Cod-liver Oil.** Chidester, F. E., Ashworth, A. L., and G. A., and Wiles, I. A. *Nature.* October 8th, 1932.]

This note draws the attention of British workers in the field of endocrine secretions and nutrition to the appearance, at an early date, in *Endocrinology*, of an extensive report in which the authors will describe results which

seem to emphasise the rôle of iodine in cod-liver oil in the prevention of rickets. Having found it possible to super-iodise and otherwise mineralise cod-liver oil, and being especially interested in the fact that a variety of substances of benefit to the organism can be carried into the cells by cod-liver oil, the authors suggest that, since ergosterol and ultra-violet light may induce excess calcifications and even set up profound calcium-iodine unbalance, it may be wise to utilise cod-liver oil in the treatment of certain diseases.

They believe that long continued experimentation makes these studies significant, and if this is so, they have evaluated the rôle of the iodine of cod-liver oil in the treatment of nutritional diseases and furnished an explanation of the activity of many iodine-containing medicaments.

W. B.

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[The Voluntary Policy for Controlling Bovine Tuberculosis. Deich. *D.T.W.* No. 4. January 23rd, 1932. 50.]

The author reviews at length the results and shortcomings of the above policy, and states that the expansion and progress in control work is checked by inadequate funds due to the present economic crisis. In the draft of the Cattle Epidemic Law it is stated that bovine tuberculosis is making incessant headway, and would inflict serious losses on farmers were it not for the continual watchfulness of the control-board. This board seems to have toyed with the idea of a universal stamping-out policy, but the enormous cost necessitates postponement of this ideal until better times.

In proposals for intensifying the campaign against tuberculosis, Schiel favours the systematic examination of bronchial mucus, by which method dangerous open cases may be detected. It seems perfectly clear that the freedom of herds from clinical tuberculosis cannot on any account be taken to imply the freedom of individual animals from this disease, and authoritative figures are quoted which show that many open cases may exist for years, after years of clinical examination; in other words, nearly 60 per cent. of openly tuberculous animals escape clinical detection. The author's experience shows that during the careful clinical examination of 13 herds over a period of three years there were always fresh cases to report. Schiel recommends that the following modifications in the voluntary policy would be advantageous and economical:—

1. All animals in the herd to be subjected to eye-tests prior to commencing systematic examinations.

2. Clinical cases and tuberculin positive animals may then be dealt with without further examination.

3. Bacteriological examinations to facilitate diagnosis may now be limited to cattle which evince a strong or fairly strong tuberculin reaction.

4. The clinically unsuspected and weakly reactive animals to be left until the following systematic examination.

Stockowners continually complain of the cost of the control work, and after preliminary trial many have withdrawn from the scheme entirely. The voluntary policy for controlling tuberculosis is a State-controlled arrangement, based upon statutory powers, designed to benefit cattle owners and as a protection of the public against the dangers of tuberculous milk. In Saxony, however, the scheme in 1928 embraced only 2·6 per cent. of the total 456,155 milk cows extant, a fact which illustrates its lack of appeal to stockowners. Apparently the question of indemnity arises here, and as part is chargeable to the owner he naturally feels that his extra expense is a kind of penalty for enrolment under the scheme.

The results of voluntary control in the Free State of Saxony in 1928 are given and show that tuberculosis of the lungs was encountered 1,182 times (6·6 per cent. of the enrolled cattle); tuberculosis of the mammary gland 48 times (·3 per cent.); tuberculosis of the uterus eight times (·04 per cent.); and tuberculosis of the bowels once (·006 per cent.): altogether, 1,239 cases of open tuberculosis (6·8 per cent.).

W. L. S.

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[Treatment of the Mammary Gland. Lange. *D.T.W.* No. 30. July 23rd, 1932. 470.]

For many years the author has experimented with many and various treatments for bovine mastitis without satisfactory results. Particulars of 45 cases of mastitis are given which were treated with a substance known as "Stenasan," prepared by A. Stietenroth, Halle, Brunswick. "Stenasan" is cheap and simple to use, being injected subcutaneously over the affected quarter and in the region of the mammary lymphatic nodes. Preliminary sterilisation of the site of injection with spirit, tincture of iodine or "Stenasan" itself, applied on cotton-wool, is recommended. In applying this treatment 20-30 c.cs. "Stenasan" are always injected at points in the neighbourhood of the lymph nodes, and in the case of diseased forequarters another 10 c.cs. are injected over the affected regions.

The cases are divided into acute and chronic forms of mastitis. Of 28 acute cases, all except three were favourably influenced and resolution took place in from three to eight days. Of

(*Concluded at foot of col.* 1, *p.* 1346.)

Reports

CHIEF VETERINARY OFFICER, DURHAM

The Annual Report for the year 1931 of the Chief Veterinary Officer to the Durham County Council, after a short introduction and a foreword on organisation, is divided into two sections, the first section dealing with work carried out under the Milk and Dairies Acts and Orders and the second one with the work under the Diseases of Animals Acts and Orders.

During the year under review 29 reports of tuberculous milk were received under Section 4 of the Milk and Dairies (Consolidation) Act of 1915, and in following up these infected milks 30 farms were visited and 478 animals examined. It is satisfactory to note that in 21 of the 29 reported cases a cow or cows suffering from tuberculosis of the udder, or passing tubercle bacilli in her milk, was detected on the farms concerned, and that in no less than six of these cases the offending cow had been found during routine inspection and slaughtered under the Tuberculosis Order of 1925 prior to the receipt of the information under Section 4 of the Act.

In two of the 29 cases cows passing tubercle bacilli in their milk had been removed from the farms between the collection of the sample and the visit of the veterinary officer, but in each case the cows were traced to where they were slaughtered and evidence obtained that they were tuberculous.

In the six remaining cases no source of infection could be found. The Chief Veterinary Officer, however, very wisely includes a paragraph of " possible explanations " which undoubtedly account for several, if not all, of the instances where no source of infection was detected.

One case of special interest is referred to where evidence was obtained of a cow passing tubercle bacilli in her milk intermittently. On the first clinical examination of the herd, three individual samples were taken and one from the remainder of the herd, which all proved negative on biological examination, but as there had been no change in the cows comprising the herd between the collection of the original tuberculous sample and the commencement of the investigation, a repeat sample was taken from one of the cows which was suspected of suffering from tuberculosis on the first examination and submitted for biological examination with a positive result. The veterinary officer or officers concerned are to be congratulated on their enthusiasm and intuition which prompted them to continue their investigations with such complete success after the milk from the herd had been found negative on biological examination.

During the period reviewed there has been an increase of from 15 to 19 premises licensed by the county council under the Milk (Special Designations) Order of 1923 for the production of " Grade A " milk.

There are two premises in the administrative area licensed for the production of " Certified " milk and one for the production of " Grade A (Tuberculin Tested) " milk.

The part of the Report dealing with work of routine inspection of the dairy herds in the county carried out under the Milk and Dairies Order of 1926, is very fully set out and contains a great deal of interesting material showing the thoroughness and enthusiasm with which this duty is performed by the veterinary staff.

The Chief Veterinary Officer has very wisely included tables showing particulars of these inspections and the results obtained in this section of his Report rather than at the end in an appendix. This easy reference to details must be appreciated by those interested in the Report. During the course of this work 4,066 visits were made to farms and 40,356 cows, of which 33,319 were cows in milk, examined. As a result of these inspections 238 cows, 133 of which suffered from udder tuberculosis, were slaughtered under the Tuberculosis Order.

The section of the Report dealing with the work under the Diseases of Animals Acts is well arranged, and accompanied by tables giving full particulars.

During the year there were five cases of anthrax, one case of foot-and-mouth disease, one case of parasitic mange, 65 cases of swine fever and 441 cases of tuberculosis.

The Report concludes with two graphs showing respectively the number of animals slaughtered under the Tuberculosis Order during the past three years and the percentage affected with the different types of tuberculosis specified in the Tuberculosis Order for the same period.

Major Harry Peele, the Chief Veterinary Officer, is to be congratulated on presenting such a comprehensive and interesting Report containing a wealth of information of the activities of the Veterinary Department under his control.

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17 chronic cases, four did not respond, nine showed improvement and in one animal healing occurred. Following the satisfactory results obtained, the application of " Stenasan " in acute cases of mastitis is recommended, used preferably within 24 hours of onset. Further, " Stenasan " injections should be supplemented by frequent milking and light udder massage, using a bland salve.

W. L. S.

VETERINARY RESEARCH LABORATORY, SOUTHERN RHODESIA

ABRIDGED REPORT (1931) OF THE DIRECTOR

Mr. Bevan is in charge of this laboratory and has done excellent work for the Southern Rhodesian Government during the last 20 years.

A lot of good original work has been carried out by this worker, some perhaps on somewhat unorthodox lines which, however, may enable him to obtain the ends he has in view.

The vaccine output is a very creditable performance.

Vaccination against quarter-evil seems to be spreading amongst the civilised communities.

It is pleasing to note that for many years now this laboratory has given considerable attention to the subject of infectious abortion; other laboratories situated in the Colonies might well concentrate on this subject and add their experiences to the general controversy of whether a dead or a live vaccine is the best method to combat this disease.

Trypanosomiasis. — Bevan's premunising method (explained in his report of several years ago) is interesting and under ideal conditions with the white stock raiser might be satisfactory, but, in the opinion of the reviewer, will never be a satisfactory method for the general native stock raiser, as their stock are not kept under ideal conditions owing to the movement of, and mixing of, stock. There are too many factors, as, for example: exposure to infected tick bites; scarcity of water and grazing; mineral deficiency; long journeys, etc.—all lowering vitality and causing a breakdown. From the reviewer's experience it is a waste of time, labour and money to attempt to treat cases of trypanosomiasis that are in low condition.

The general experience of foot-and-mouth disease in tropical Africa is that the viruses of this disease are of very low virulency. Bevan, in his outbreak, was probably dealing with a virus that had come down through East Africa; it would have been an interesting point to have tried the infected material on an animal of recent European importation.

The reviewer is a believer that a degree of immunity can be and is inherited by Afrikander stock against this disease; every cross for improvement of stock by European stock lowers the inherited resistance.

The Director concludes his report with a few words emphasising the necessity for veterinary research in a young Colony.

W. P. B. B.

CIVIL VETERINARY DEPARTMENT, ASSAM*

The staff consists of one Superintendent, four Veterinary Inspectors and fifty-seven Veterinary Assistant Surgeons. Mr. Harris, the Superintendent, was on leave for six-and-a-half months of the year under review, when Veterinary Inspector Babu Gurn Prasauna Sen officiated. Fourteen Government stipendiaries were undergoing instruction at the Bengal Veterinary College, Calcutta.

Disease.—There was a decrease in the mortality compared to the two previous years in respect to rinderpest, hæmorrhagic septicæmia and surra, but there was an increase in the number of deaths from foot-and-mouth disease. Preventive inoculation was extensively practised, mainly by the " serum alone " method for rinderpest. The "serum simultaneous" method was adopted to a limited degree without the loss of a single animal, goat virus being used.

Some 1,400 animals, including 218 equines, were inoculated against anthrax with serum alone. During the year experiments were carried out in the treatment of anthrax by intravenous injections of arsenic, with successful results.

One elephant, one horse and 34 dogs were treated with anti-rabic vaccine. The treatment of animals in the three veterinary dispensaries and in villages was carried out satisfactorily, the figures showing an increase on the previous year. The number of castrations performed on weedy bulls has been increased and the fact is favourably commended.

The regular examination of elephants for intestinal and hepatic parasites with a view to keeping the animals in good condition is worthy of note and more information in respect to this work would be interesting.

General.—It is reported that the work of the Veterinary Inspectors was carried out satisfactorily but, owing to lack of funds, their inspection work had to be curtailed. As stated in the report, this must be detrimental to the efficiency of the Department, if continued.

The thanks of the Government are conveyed to Mr. Harris for his efficient administration.

G. K. W.

* Report of the Civil Veterinary Department, Assam, for the year 1930-31. (Assam Government Press, Shillong. Price 1s. 1d.).

" Animals which show no symptoms clinically and have no history of abortions, frequently give positive agglutination tests for *Br. abortus.* Injections of a vaccine into such animals have always insured successful gestation. Infection through their milk has never been observed."—*Bio. Abst.*

N.V.M.A. Divisional Report

MIDLAND COUNTIES V.M.A.

MEETING AT BIRMINGHAM*

The quarterly meeting of the Midland Veterinary Medical Association was held at the Grand Hotel, Birmingham, on Wednesday, Aug 31st, 1932. The President (Mr. Frank Chambers, of Wolverhampton) occupied the chair, and those present included Messrs. E. Brayley Reynolds, W. F. Aston, R. H. H. Over, K. A. Miles, L. C. Tipper, C. Haywood, W. E. Ison, F. C. Heathcote, H. W. Griffiths, H. Yeomans, R. L. Phillips, T. Marriott, J. W. Conchie, W. C. Lowe, W. P. Blount, T. D. M. Martin, W. H. Brooke, K. D. Downham, A. A. Forsyth, J. Cochrane-Dyet, J. W. R. Pearce, W. Newey, W. L. Dwerryhouse, O. V. Gunning, J. Scott, H. Perry and H. W. Dawes (Hon. Secretary).

Apologies for unavoidable absence were received from the following:—Sir Gilbert Barling, Professor Macqueen, Professor Hobday, M. Tailby, T. Chambers, R. Lake, F. L. Gooch, J. J. Burchnall, E. Ringer, H. Tudor Hughes, B. DeVine, L. W. Heelis, A. McKenzie, T. J. Brain, J. L. Brain, J. Martin, senr., H. B. Hiles, E. Hall, D. Forwell, E. Franklin, A. Renfrew, H. Burrow and many others, including Mr. W. Trigger, who was to have been one of the essayists at the meeting.

Nominations and Elections.—Mr. G. V. Tyerman, of Ludlow, wrote that having sold his practice he desired to nominate his successor, namely, Mr. T. B. Yarrow, as a member of the Association.

The following gentlemen, duly nominated at the previous meeting, were admitted to membership of the Association:—Mr. W. P. Blount, of the Poultry Research Laboratory, Goring-on-Thames, and Mr. C. J. V. Edwards, Leicester.

Birmingham Medical Institute.—The Hon. Secretary reported the receipt of a letter from the Birmingham Medical Institute stating that members of this Association had now definitely been accepted as potential members. This had involved an alteration of the articles of the Institute, and this had been sanctioned in the proper quarter.

The Hon. Secretary appealed to his fellow members to join the Institute, which, in addition to its professional activities, possessed an excellent library, reading, writing and luncheon rooms conveniently situated in the centre of the city. This was something more than a gesture on the part of the medical profession towards the veterinary profession. It was a recognition, and was to be accepted as such. For that reason, he hoped that as many members as could conveniently do so would make a point of joining the Institute.

The President briefly supported the Hon. Secretary's appeal.

Next Place of Meeting.—The Council having met previous to this meeting, recommended that the next quarterly meeting of the Association be held at Rugby, on Thursday, November 10th, and that Mr. G. P. Male, of Reading, be invited to read a paper. This was agreed to.

War Loan Conversion.—The Hon. Secretary further reported that the Council, subject to the approval of the Association, had authorised the Hon. Treasurer to convert the £100 War Stock held by the Association, under the Chancellor of the Exchequer's scheme.

Fraternal Greetings.—Mr. Tipper said that during his recent tour of Canada he got to Vancouver, where a three-days' conference of the Pacific North West Veterinary Medical Association happened to be in progress. He made himself known, and was requested to convey to the Midland Association the fraternal greetings of their professional brethren in the Far West.

Papers.—The following papers were now read and discussed:—

(1) "The Advantages and Disadvantages of Acid Firing" (Mr. K. A. Miles);

(2) "Bovine Teat Surgery" (Captain W. F. Aston);

(2) "Specific Canine Hysteria" (Mr. H. W. Griffiths).

[These papers are reproduced, together with reports of the discussions upon them, at the commencement of this issue.—Ed., *V.R.*]

A fourth paper, on Calcium Therapy, which Mr. W. Trigger was to have read, was postponed till a future occasion, in the unavoidable absence of that gentleman, much regret being expressed at his being unable to present a paper on a matter of such great clinical interest.

Vote of Thanks.—A vote of thanks was accorded to the readers of the papers.

H. W. Dawes, *Hon. Secretary.*

* Received for publication October 17th.

In Parliament

The following questions and answers were recorded in the House of Commons recently (*Hansard* reports):—

Psittacosis

Mr. Turton asked the Minister of Health how many cases of psittacosis had been reported in this country before the present restrictions upon the importation of parrots were imposed four years ago and how many cases have been reported since the restrictions were imposed; and whether, in view of the inconvenience the restrictions cause, he can see his way to relax or abolish them?

Sir H. Young: Some 125 cases of psittacosis were reported in this country before the present restrictions came into force and four cases have been reported since. In view of the fact that further cases of this disease have recently occurred in the United States of America and on the Continent of Europe, and that the Office International d'Hygiene publique have recommended

the maintenance of existing prohibitions, I cannot see my way at present to relax or revoke the Regulations in force in this country.

Mr. Turton: Will the right hon. Gentleman relax the regulations and allow a parrot or a parrakeet which has left this country to be readmitted?

Sir H. Young: I am afraid that would have the same bad effect as an initial admittance.

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Ponies in Mines

Sir R. Gower asked the Secretary for Mines whether he has had further reports in regard to the utility of the experimental electric battery lamps fixed to the harness of the horses below the ground; whether these lamps enable the horses to work with greater confidence and tend to reduce the liability to accidents; and whether he hopes to be able to issue recommendations as to their more general adoption in the near future?

Mr. E. Brown: Three types of pony lamps have been approved as safe for use in mines and a fourth type is about to be approved. The inspectors of mines are using their influence to encourage the more extended trial of such lamps, but further practical experience is necessary before it can be decided how far their general adoption would be desirable. The reports so far received, however, are favourable to the view that such lamps may assist in the reduction of accidents both to horses and drivers.

Sir R. Gower asked the Secretary for Mines the total number of horses and ponies employed below ground in mines at the end of June, 1932; the number of horses used per million tons of coal raised in each of the eight divisions; the number of horses and ponies so employed in 1922; the number used per million tons of coal raised in each division in that year; and the general causes for the reduction in the number of ponies used in the several divisions?

Mr. Brown: The figures are given in the following table:—

Inspection Division.	June, 1932. Number of Horses and Ponies employed below ground at 30th June.	June, 1932. Number of Horses and Ponies employed per million tons of coal raised.	1922. Number of Horses and Ponies employed below ground at 31st December.	1922. Number of Horses and Ponies employed per million tons of coal raised.
Scotland ...	1,159	40	3,810	107
Northern ...	14,861	336	21,159	421
Yorkshire ...	5,967	147	8,346	198
North Midland	6,771	222	8,632	281
North Western	726	32	1,862	71
Cardiff and Forest of Dean ...	6,666	242	16,749	326
Swansea ...	3,292	310		
Midland and Southern ...	2,322	164	3,263	246
Total ...	41,764	190	63,821	256

The reduction in the number of horses and ponies is partly a result of the increased use of mechanical haulage and conveyors and partly a result of the contraction of the industry.

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Remounts

Lieut.-Colonel Moore asked the Financial Secretary to the War Office whether any remounts for the Army have been purchased from Ireland since the imposition of special import duties on Irish exports to the country; and whether any special steps are being taken to secure alternative supplies within Great Britain?

The Financial Secretary to the War Office (Mr. Duff Cooper): No remounts have been purchased from the Irish Free State since the imposition of the special import duties. The policy of purchasing as many horses as possible within the United Kingdom is being continued.

Lieut.-Colonel Moore: Is the hon. Member satisfied that the standard of horses purchased in this country is as good as the standard of horses purchased for remounts in Ireland?

Mr. Cooper: Yes.

Sir William Davison: Is it not a fact that the best remounts in the world are to be obtained in Northern Ireland, and that they are not affected in any way?

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Dogs (Destruction Orders)

Sir R. Gower asked the Home Secretary whether he will consider the desirability of introducing legislation giving owners, against whose dogs destruction orders have been made by petty sessional courts, the right to appeal against such orders to quarter sessions?

Sir J. Gilmour: I regret that I am not able to introduce any such legislation.

Badger Hunting

Sir R. Gower asked the Home Secretary whether he will consider the desirability of introducing legislation to make badger hunting illegal?

Sir J. Gilmour: I have no evidence before me to show that legislation for this purpose is desirable.

The Scottish Colleges

ANNUAL PRIZE DISTRIBUTION AT GLASGOW

Presiding on October 21st at the annual distribution of prizes in connection with the Glasgow Veterinary College, Professor Glaister, Chairman of the governors, recalled the old proverbial saying that threatened men lived long, and he supposed that could be applied to threatened institutions. Some years ago it had been practically resolved that the Glasgow Veterinary College should cease to exist, but some of them in Glasgow, which was really the centre of agriculture in Scotland, believed, and the West of Scotland believed, that there was not only room for the Glasgow College, but that, given a fair field and no favour, it had a good chance to prosper.

The governors, in consequence, determined to hold on, and they had held on with some measure of success. When he recalled that at that time the number of students in the College was between 60 and 70 and that they were now starting the session with between 150 and 160, they would appreciate the reason why the College succeeded. That reason, he felt, would be found in a reference to the annual report, which showed that the students from the Glasgow College held their own with students from other Colleges with regard to passes and honours, and the first Fitzwygram Prize for 1930-31 had been awarded to W. A. Milligan, of the Glasgow College.

Continuing, Professor Glaister stated that for the first time in history there was to be an extension in the course of veterinary teaching. He welcomed that change; he felt that it was putting the position of the veterinary profession on a higher plane than it had been before and was bringing it more into line with the other professions which had found a place on the State register.

They had, to use a Scottish expression, "warsled" through their difficulties. In the years when money was scarce they had not only managed to meet their requirements, but they had been able to add to their facilities by extending the laboratories, increasing scientific apparatus, and enlarging the accommodation for the students. But they could still do with more money. The College had been well supported by county and urban councils, and could hold up its head with the proud knowledge that it had been supported by the people who knew its needs. He would point out, however, to County Councils that since the numbers of students were increasing, the Governors hoped that their contributions would not only be continued, but be increased to a certain extent in the future.

Professor Glaister intimated that a donation of £500 had been received from the Tailwaggers' Club. That money was earmarked for the subject of canine research, and he commended some of the students to concentrate upon that subject because, in the near future, something would have to be done in that particular branch of the work.

PRIZE WINNERS

The prizes gained during the past session were presented by Mrs. McCredie, daughter of Lord Provost Sir Thomas Kelly, the list of medal winners being as follows:—

CLASS "A"

Mr. R. N. C. Aitken, Blantyre, is awarded the H. and A.S. silver medals in junior anatomy and biology, and the College first-class certificates of merit in junior anatomy, chemistry and biology. He also gained second honours in the professional examination.

Mr. James Bolton, Lennoxtown, is awarded the H. and A.S. silver medals in chemistry, and the College first-class certificates of merit in chemistry and biology; second honours in the professional examination.

Mr. J. J. Murdoch, Glasgow, is awarded the H. and A.S. silver medal in chemistry, and the College first-class certificates of merit in junior anatomy, chemistry and biology; second honours in the professional examination.

CLASS "B"

Mr. John McLintock, Morar, Kilmacolm, is awarded the gold medal presented by the Board of Governors to the student gaining the highest marks in the professional examination in anatomy, the H. and A.S. silver medal in senior anatomy, and the College first-class certificates of merit in senior anatomy and physiology; second honours in the professional examination.

Mr. D. M. McIntyre, Kinloch Rannoch, is awarded the H. and A.S. silver medal in physiology, and the College first-class certificates of merit in senior anatomy and physiology; second honours in the professional examination.

Mr. A. H. Muir, Newmilns, is awarded the H. and A.S. silver medal in stable management, and the College first-class certificates of merit in senior anatomy and stable management; second honours in the professional examination.

CLASS "C"

Mr. J. W. Macaulay, Glasgow, is awarded the H. and A.S. silver medals in materia medica and hygiene, and the College first-class certificates of merit in materia medica and hygiene.

Mr. David Hawkness, Lanark, is awarded the H. and A.S. silver medal in pathology, and the College first-class certificate of merit in materia medica.

CLASS "D"

The following passed their final professional examination and graduated M.R.C.V.S.:—

On December 11th, 1931.—Archibald D. Campbell, Stepps; B. G. Catmur, London; Henry Doyle, Troon; Adam Gibb, Motherwell.

On July 14th, 1932.—Manson Baird, Glasgow; R. W. Chesters, Glasgow; Samuel Jamieson, Glasgow; Colin Mackenzie, Cromarty; John MacKinnon, Broadford, Skye.

Mr. Adam Gibb is awarded the H. and A.S. silver medals in medicine and surgery, and the College first-class certificates of merit in medicine, surgery, and parasitology.

Replying to a vote of thanks proposed by Mr. William Martin, president of the Students' Representative Council, Professor Glaister remarked that they would continue to show the people of the East that the vitality of the West was sufficient not only to keep the College going, but to make it go ahead.

THE "DICK" COLLEGE REPORT

The report on session 1931-1932, submitted at a recent meeting of the Board of Governors, shows that the number of students attending courses of instruction at the Royal (Dick) Veterinary College, Edinburgh, is higher than that for any session during the last thirty years. Students attended from 29 counties in Scotland, 24 counties in England and Wales, and five counties in Ireland, and also from Guernsey, India, South Africa, the Gold Coast, Nigeria, Tanganyika, Uganda, Palestine, Siam, Finland, China, Spain, and Turkey.

As an index of the rapidity of evolution of veterinary education in this country it is pointed out that, in less than 90 years, the length of the curriculum has been more than doubled, with the result that the veterinary student of the future will have a period of training equal to that of the medical student.

As a result of the rapidly increasing advantages that those concerned in the poultry industry have taken of the assistance afforded by the Department of Diseases of Poultry, the accommodation hitherto provided for the Department has proved quite inadequate. During the summer vacation, therefore, a special laboratory has been furnished and equipped and is now in use.

During the session twenty papers have been published by members of the staff and research workers in the College.

Notes and News

The Editor will be glad to receive items of professional interest for inclusion in these columns.

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Nov. 7th.—Meeting of the Editorial Committee, N.V.M.A., at 2, Verulam Buildings, Gray's Inn, W.C.1, at 4.30 p.m.

Nov. 8th. — Special Meeting of Council, N.V.M.A., at 10, Red Lion Square, W.C.1, at 2 p.m.
Meeting of Finance and General Purposes Committee, N.V.M.A., at 10, Red Lion Square, W.C.1, at 2.45 p.m.

Nov. 10th.—Meeting of the Midland Counties Division, N.V.M.A., at Rugby.

Nov. 12th.—Royal (Dick) Veterinary College Contingent O.T.C. Annual Dinner, Edinburgh.

Nov. 18th.—Meeting of the North Wales Division, N.V.M.A., at Rhyl.

Nov. 25th.—Meeting of the Southern Counties Division, N.V.M.A., at Winchester.

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WALLASEY DISPENSARY'S FINE WORK

A notable example of the professionally-staffed clinics for the treatment of the animals of poor persons, which are being established up and down the country, is furnished by that at Wallasey, to which the Mayor and Mayoress (Alderman and Mrs. P. D. Charlesworth) paid an official visit on October 11th.

"The fine work which is being done aroused the Mayor's admiration," says the *Wallasey News*. "He said that what he had seen had convinced

him of the need of a place of that description. Some people were fortunate enough to be able to pay for attention to their pets when they fell ill, but others were less fortunate. Here they found friends, kind and generous, ready to place their skill at their disposal free of charge. It was a great humanitarian work.

"The Mayor added that the Council were being called upon to give the decision regarding the training of Alsatians for leading the blind, an application having been lodged for registering for this purpose. In such a case the Council could do with some expert advice. He could not speak too highly of the work of their dispensary, and he hoped that they would not only continue to carry it on but that increased support would be forthcoming to enable them to extend what had proved itself to be a much needed service in the great humanitarian work.

"Miss Cann is the hard-working hon. secretary of this splendid institution, whilst Mr. Alexander Dobie and Mr. J. W. F. Lilburne, veterinary surgeons, give their services free. The Rover Scouts give assistance, and a young chemist is the dispenser. The Dispensary treats more than a thousand cases a year and is deserving of all the support which Wallasey animal lovers can give it."

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THE LATE MR. J. H. YATES

At the funeral of the late Mr. J. H. Yates, O.B.E., M.R.C.V.S., of Sheffield, whose death was recorded in our last issue, members of the veterinary profession present included Major Joseph Abson, F.R.C.V.S., Mr. H. R. Laycock, M.R.C.V.S., and Mr. Stephen E. Sampson, M.R.C.V.S.

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PERSONAL

Pending Retirement of Mr. Harris from Assam: Government Tribute

We regret to learn that early last month Mr. William Harris, M.R.C.V.S., Supt. C.V.D., Assam, entered the Welsh Mission Hospital, Shillong, Assam, with an acute attack of appendicitis. "This has now died down," writes Mr. Harris on October 11th, "and I am waiting for an operation. . . . I may be home about Christmas time."

Elsewhere in this issue we publish a review of the report on the work of his Department for the year 1930-31, submitted by Mr. Harris in his capacity as Superintendent. In this connection, the Calcutta *Statesman* of September 30th, 1932, says:—

"Under the care of Mr. W. Harris, Superintendent, Civil Veterinary Department, Assam, who has been compelled by ill health to take leave preparatory to retirement, the Civil Veterinary Department of the province has now completed 25 years of existence. The Government, in a Resolution, acknowledge the value of his services and express the loss the Department will suffer from his retirement.

"Faced at the outset by natural prejudice and opposition, the Department has steadily worked its way into popular favour by means of treatment by inoculation and other methods, and has created an ever increasing demand for its services. Epidemic disease has been successfully combated, and a fair amount of research work has been done." . . . "In losing the services of the Superintendent the Assam Government draw attention to work that deserves more than passing notice," comments the *Statesman* in another column. "For the excellent results obtained prolonged research and painstaking routine work were indispensable and Mr. W. Harris amply deserves the tribute paid to him in the Government resolution. The Department has had a long struggle against the inertia of custom and the agriculturists' fear of innovation, but it now commands widespread confidence. Bird and beast, in Assam, as well as their owners, are the gainers."

Birth.—On October 26th, 1932, at 26, Ashley Lane, Hendon, N.W.4, to Professor J. G. and Mrs. Wright, a son.

Lieut.-Colonel Young's Return.—After voyaging 15,000 miles in attending the International Refrigeration Congress at Buenos Aires and visiting all the meat works as the guest of the Argentinian, Uraguayan and Brazilian Governments, Lieut.-Colonel T. Dunlop Young, Veterinary Officer and Chief Veterinary Inspector to the Corporation of London, is now back at Smithfield. During his visit to Buenos Aires, Colonel Young had the honour of being made a Corresponding Member of the Society of Veterinary Medicine.

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FOOT-AND-MOUTH DISEASE

The existence of foot-and-mouth disease was confirmed on October 29th among cattle on premises at Caistor, near Lincoln, states the Minstry of Agriculture. The usual prohibition of movement order is in force in the area, which lies entirely within the Lindsey Division of Lincolnshire.

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PIG BREEDING AND DISEASE PROBLEMS

In regard to the need for the fullest efficiency in pig breeding and feeding, the recently-issued report of the Government's Pig Reorganisation Commission shows that pig recording is regarded as an integral part of an efficiency campaign. In conjunction with the litter testing, it enables the farmer, the report asserts, to find out how much of his success or failure as a pig-keeper is attributable to breeding and how much to feeding management. If a farmer could purchase tested stock, or stock derived therefrom, recording on the farm would show him that, if he failed to reach the standard previously attained at litter-testing stations by the stock in question, something was at fault in his management. It is, the Commission considers, for pedigree breeders to take steps to create a supply of stock tested in this way.

In regard to the type and breed of pig to be recommended, the Commission bows to the wide experience of the Pig Industry Council, and supports its opinion that "the continued use of the Large White boar would improve the standard of commercial stock," and its recommendation "that every encouragement should be given to the use of the Large White boar, and that, in addition, premiums should be given only to the boars of the Berkshire, Large Black, Middle White, Wessex and Essex breeds, these being the breeds recommended by the trade as providing suitable sows for crossing with the Large White." To this list, on expert advice, the Commission adds the Long White Lop-eared breed. The Commission also supports the P.I.C.'s recommendation for legislation for the purpose of eliminating scrub boars on the lines of the Bull Licensing Act.

The Commission concurs in the finding of the Pig Industry Council in regard to the seriousness of the disease question. The Council found that the diseases causing the greatest losses are swine fever, swine erysipelas, and certain diseases of the unweaned pig, and the Council recommend that special attention should be given to ascertaining improved methods of prevention,

diagnosis, and treatment. The Commission further supports the P.I.C.'s recommendations for a Central Research Station for this work, and for machinery by which the results of this research can be made effective for preventing and treating these diseases on farms.

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HUMAN AND BOVINE TUBERCULOSIS.

Dr. Nathan Raw's Presidential Address to the Hunterian Society

In his presidential address on the above subject, delivered to the Hunterian Society at the first meeting of the session on October 17th, Dr. Nathan Raw described the eradication of tuberculosis from dairy cows as one of the most serious problems of the day and said that the only real solution was to prevent the infection of calves.

As early as 1906 Dr. Raw came to the conclusion that good results could not be obtained by the use of virulent cultures; accordingly, he secured pure cultures of the three strains of the tubercle bacillus and commenced the attempt to attenuate these by repeated subculture, eventually reaching the conclusions: (1) that it is possible to render the tubercle bacillus non-pathogenic; (2) that a vaccine prepared from this avirulent organism has enhanced immunising properties and can be used with perfect safety in large doses. So far, between 6,000 and 7,000 calves, chiefly of pedigree stock, had been immunised. The vaccine was injected when the calf was a week old, and again at the end of two weeks, and very satisfactory results had been obtained. The use of 23-year cultures in the treatment of human tuberculosis had also proved efficacious.

Concerning the question of mutation, Dr. Raw asked if it were possible that the bovine bacillus, when introduced into the human body in children, may lie dormant in the tissues for many years and, becoming adapted to its new environment, may assume the characteristics of a human bacillus and thus set up human tuberculosis. In this connection, the following were a few of the important problems awaiting solution, having regard to the fact that the bovine bacillus almost invariably attacks children, while the human bacillus is most frequently found to attack the lungs between the ages of 18 and 25: (1) What is the life history of the tubercle bacillus before it enters living tissues? (2) Has it undergone a previous mutation? (3) Is infection of the lungs respiratory or alimentary? (4) Does direct respiratory infection from person to person occur? (5) Why do bovine infections in the human occur in childhood chiefly? (6) Why does pulmonary tuberculosis (primary) occur in early adult life chiefly? (7) Does the bovine bacillus, from long residence in human tissues, become transmuted into the human type and so produce lung infection? (8) Does a bovine infection of the human body produce immunity against the human bacillus and *vice versa*? (9) Does a reinfection ever occur in the human? (10) Can tubercle bacilli in human tissues be distroyed? (11) Is the infection ever ante-natal? (12) It there any hereditary predisposition to infection?

The appointment of a Government departmental commission to consider the best methods of dealing with and supplying milk to the public was strongly urged by Dr. Raw.

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FARMERS AND MEDICAL OFFICERS

Lord Lonsdale was unanimously elected President of the British Dairy Farmers' Association for 1933 at the half-yearly meeting of the Association at the Royal Agricultural Hall on October 19th.

Mr. John Evens, the retiring President, expressed gratification at the success of the 1932 show, and said the council were to be congratulated on an eminently satisfactory report, in spite of the present difficult times. The Association had lost some members, but. nothing like the number that other agricultural organisations had lost in the past year.

Colonel Waley Cohen urged the desirability of forming a committee representing milk producers to co-operate with medical officers, and particularly the medical officers of the Association, with a view to arriving at the best method of supplying to the public milk of a type in which the medical officers would have full confidence. He said there was extraordinary ignorance on the part of medical officers with regard to cattle. The producers of milk had accumulated a knowledge with regard to the health and diseases of cattle which, in the case of the older people in the industry, was of enormous value. He appealed to the council to take up this matter vigorously. In West Sussex medical officers had met responsible representatives of producers and the results had been the dissipation of friction between the two bodies and a remarkable improvement in the standard of cow-keeping and milk production.

The President gave an assurance that the matter would receive the careful attention of the council.

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CLEAN RAW *VERSUS* PASTEURISED MILK

In the course of a discussion on the above subject at a farmers' convention at Rochdale, Dr. Louis Klein, Professor of Veterinary Hygiene at the University of Pennsylvania, asserted that pasteurisation destroyed or weakened the germicidal power of milk, and mentioned the case of another investigator who found that at ice-box temperature bacteria multiplied four times faster in commercially pasteurised than in raw milk.

The occasion was the presentation by Mr. Clifford W. H. Glossop, M.P. (Penistone Division), and a well-known breeder of British Friesians, of the case for the continuance of the supply of clean, raw milk as against the pasteurised article. Mr. Glossop pointed out that after much expense and effort on the part of the producers, and at a time when the standard of cleanliness had been substantially improved, there came a sudden cry for the pasteurisation of milk. Pasteurisation he regarded as a retrograde step. It would not increase consumption because of the unpleasant taste, or overcome the surplus milk problem, because since dirty milk could be pasteurised, farmers could continue as producers on holdings that were unsuited for the purpose. A progressive step would have been to continue to tighten up regulations regarding production, educate the public as to the value of milk, and encourage them to pay a fair price for a superior article.

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The Editor acknowledges the receipt of the following:—

Reports of Meetings of the North Midland and North Wales Divisions, N.V.M.A., from Mr. W. Tweed and Mr. H. V. Hughes (respective Hon. Secretaries).

Communications from Messrs. D. J. Anthony (Brierley Hill), J. C. Coleman (Swindon), F. H. Manley (Cyprus), Major T. G. Heatley (Woodbridge), Captain W. T. Olver (Tamworth). Captain F. C. Scott (Pontefract), Dr. A. L. Sheather (Chorley Wood), Captain J. F. D. Tutt (Winchester) and Mr. D. E. Wilkinson (Chigwell).